

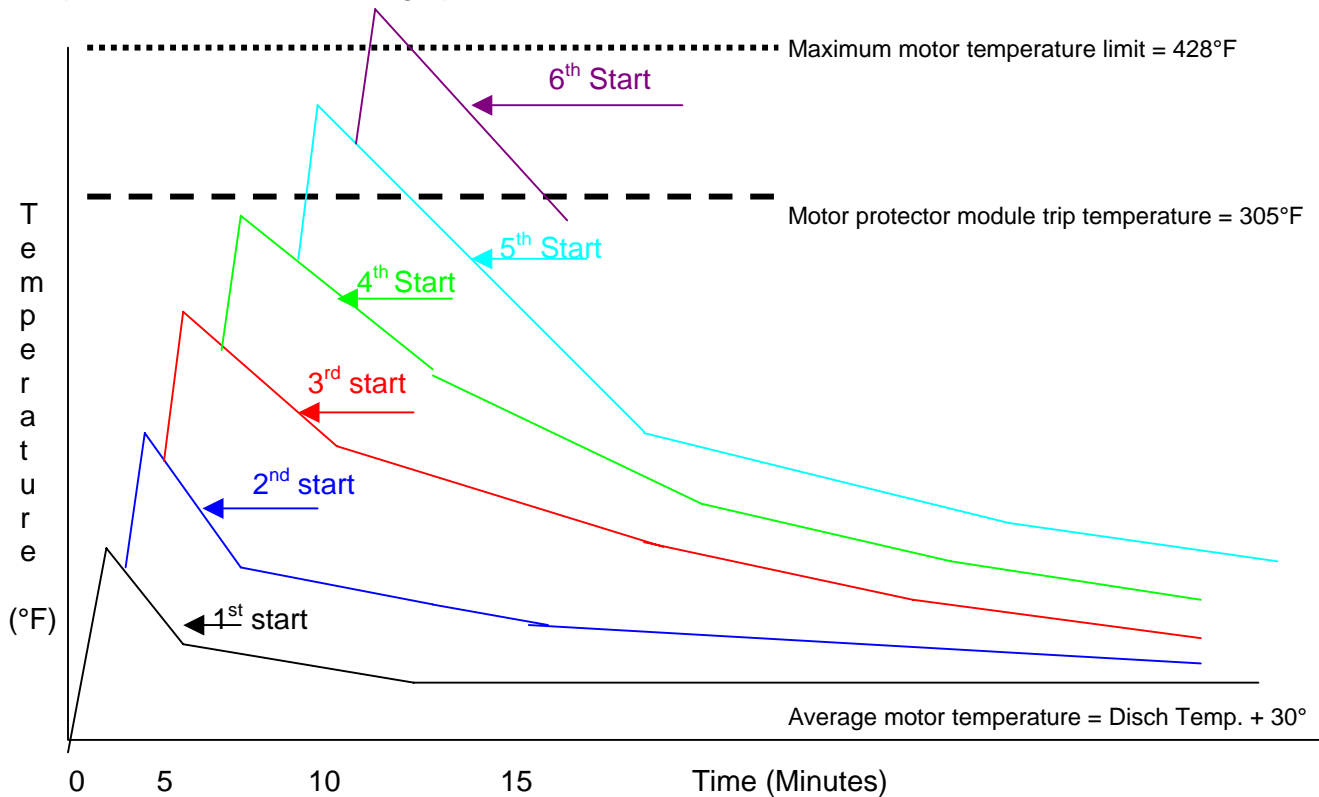


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SERVICE BULLETIN : MSC Limitations on Starting and Stopping The Compressor

According to the MSC Installation and Operations manual, HCI requires a minimum of 15 minutes between each start of the compressor and a maximum of four starts per hour. The reason that we require 15 minutes between starts is for dissipation of heat. This heat is generated by the motor of the compressor immediately upon start-up. After the compressor has operated for at least 15 minutes the heat dissipates and lowers to an average running temperature.

- If you try to restart the compressor before the 15 minutes have passed, the heat generated by the second start will be added to the high temperature already existing in the compressor from the first start.
- If this was to happen for a third time, 5 minutes or so later, then the heat build-up inside the compressor will again be increased and the same thing would happen if the compressor was restarted for a fourth time in a row.
- The temperature at this point at the motor is either at or very close to the motor protector trip point. A fifth start will most likely trip the motor protector module.
- If the motor protector is either disconnected or jumped out at this point a sixth start would possibly damage the motor.
- An example of this is shown in the graph below.



Note*

The motor protector is designed to shut down the compressor due to high motor temperatures. If for some reason the motor protector is not operating the motor will overheat. For this reason the motor protector should never be disconnected or bypassed. Please check to make sure that the motor protector module is properly wired and operating normally. Please call HCI Application engineering for troubleshooting assistance.

- In the graph on the previous page the compressor is started six times in a row without waiting the 15 minutes between starts. As indicated on the graph the temperature rises to a point where it exceeds the maximum allowable temperature of the motor. This is when damage to the motor will occur.
- Also shown in this graph is the fact that after 15 minutes on the first start the compressor has cooled down to an average running temperature. But if you start the compressor without waiting 15 minutes until it reaches this temperature it will take an extended amount of time to reach the average running temperature. This will increase with each additional start of the compressor.

Some examples of starts and the necessary time required to wait before the compressor can be restarted:

1. You start the compressor and it runs for 5 minutes. You must wait 10 minutes from this point before restarting the compressor again.
 2. You start the compressor and it runs 10 minutes. You must wait 5 minutes from this point before restarting the compressor again.
 3. You start the compressor and it runs 15 minutes or more. You do not have to wait. You may restart the compressor immediately at this point.
- We recommend that an anti-recycle timer be used on the system to ensure that the unit can not be restarted until at least 15 minutes have passed from the prior start.
 - If you have any questions please contact the Hartford Compressors Application Engineering Department.